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LETTER OF TRANSMITTAL

TO: HCDEH
100 H St., Ste. 100
Eureka, CA 95501

DATE: April 6, 2005
JOB NO.: 4844.01
PROJECT: LOP No. 12290

ATTN:

TRANSMITTED BY: ☒ Mail ☐ Delivered In Person ☐ Fax

No. Copies		Description
1	1.	Subsurface Investigation Report of Findings
	2.	
	3.	
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	5.	
	6.	

REMARKS:

THIS MATERIAL SENT FOR: ☒ As Requested ☒ Information
☐ Approval ☐

cc: Don Murrish, Murrish and Associates

By:

Gary L. Manhart, P.G.

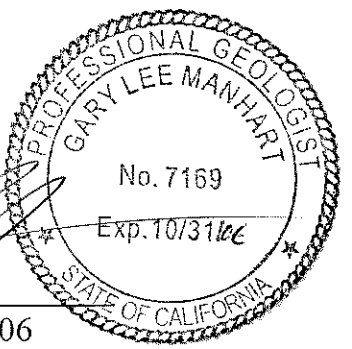
21 W. 4th Street • P.O. Box 1023 • Eureka, California 95502 • 707-443-5054 • 1-800-515-5054 • FAX 707-443-0553
www.lacoassociates.us

SUBSURFACE INVESTIGATION REPORT OF FINDINGS

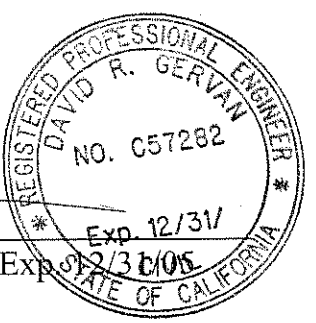
Former Zenker-Felt Motors
22 West Fourth Street, Eureka, California

LOP No. 12290

Prepared for:
Mr. Donald Murrish
Murrish and Associates
925 Sixth Street
Eureka, California 95501



Gary L. Manhart, P.G. 7169, Exp. 10/31/06



David R. Gervan, R.C.E. 57282, Exp. 12/31/05

LACO ASSOCIATES
CONSULTING ENGINEERS
21 W. 4th St. · PO 1023 · Eureka, CA 95502 · 707.443.5054

April 6, 2005
Project No. 4844.01

SUBSURFACE INVESTIGATION REPORT OF FINDINGS

Former Zenker-Felt Motors; 22 West Fourth Street, Eureka, California
LOP No. 12290; LACO ASSOCIATES Project No. 4844.01

EXECUTIVE SUMMARY

Field work to verify the degradation of the petroleum hydrocarbon mass, originating from the former waste oil underground storage tank (UST) at the former Zenker-Felt Motors site, was conducted on January 24, 2005 (Figure 1). The work was performed according to the November 10, 2003, *Additional Site Assessment Letter Workplan*, prepared by LACO ASSOCIATES (LACO), in response to the Humboldt County Division of Environmental Health (HCDEH) letter dated September 18, 2003, outlining regulatory closure requirements for the site. The November 10, 2003, workplan was approved by HCDEH in correspondence dated November 23, 2003. Additionally, to satisfy regulatory closure requirements, a sensitive receptor survey for the site was submitted to HCDEH March 31, 2004.

LACO, under the observation of a staff geologist, installed one temporary soil boring, B12 (Figure 2), to determine if degradation of soil and groundwater contamination is occurring at the site. Analysis of the soil and groundwater samples collected from this boring indicate that the petroleum hydrocarbon mass has degraded to below detection limits in soil and groundwater in this location, adjacent to the primary source area. Based on analytical results from this investigation, and the stability of the defined groundwater plume identified during previous investigations, corrective action at the site appears complete and we request case closure.

BACKGROUND

One 1,000-gallon waste oil UST was removed from the site in June 1990 by Beacom Construction of Fortuna, California. Three phases of subsurface work were performed to delineate the extent of contamination at the site, May 2000, November 2001, and February 2002. These three phases of work were presented in our May 2000 and June 2002 reports. Concentrations of motor oil in soil greater than 1,000 parts per million (ppm) were reported in historical borings B3, B5 (May 2000), and B6 (November 2001) between depths of approximately 5 and 10 feet. Non-detect and low (less than 50 ppm) motor oil concentrations reported in historical borings B1, B2, B4, and B7 through B11, essentially surrounding borings B3, B5, and B6, delineated the extent of the sorbed-phase mass at the site. Additionally, groundwater impacted by waste oil at the site was identified in only two borings (B3 and B6). Based on this analytical data, LACO concluded the plume to be "defined and stable." HCDEH concurred with the state of the plume in their letter dated September 2003.

SITE DESCRIPTION

The subject property is located on the north side of Fourth Street approximately 100 feet west of the Fourth and A Streets intersection (Figure 2). The immediate site area is serviced by City of Eureka water and sewer. PG&E provides electricity and natural gas, and phone service is provided by Pacific Bell.

The site is located on the filled tidal margin of Humboldt Bay. Surface drainage is generally toward the west. Native soil encountered during this boring installation was capped by approximately 5 feet of dredge fill. A peat layer was identified in the boring at a depth of approximately 5.7 feet. Native soil consisted of gray silty sand. Soils observed in boring B12 during this investigation are typical of soils observed in historical borings across the site.

Soil conditions were saturated beginning at a depth of approximately 1 foot at the time of this investigation.

METHODS

Field Methods

In accordance with our approved workplan, LACO installed, logged, and sampled one temporary boring, B12, at the former Zenker-Felt Motors site on January 24, 2005. The boring was installed using direct push GeoProbe technology to a depth of approximately 8 feet. Soil types encountered were logged and classified in accordance with ASTM D-2488 criteria. Boring B12 was installed between the former tank and historical boring B6 to ensure the soil and groundwater samples collected were in the core of the presumed contaminant mass.

One soil sample was collected at a depth of approximately 6 feet from boring B12. The sample was collected in a brass tube, the ends of the brass tube were sealed with Teflon film, and capped with plastic end caps. The sample was stored and transported in a chilled chest, and submitted under chain of custody to a State-certified laboratory for analysis of:

- Total Petroleum Hydrocarbons as gasoline (TPHg) by EPA Method 5035/GCFID
- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) by EPA Method 8021B
- Methyl Tertiary Butyl Ether (MTBE) by EPA Method 8021B
- Total Petroleum Hydrocarbons as diesel (TPHd) and motor oil (TPHmo) by EPA Method 3550 with silica gel cleanup

One groundwater sample was collected from boring B12 from a screened interval of approximately 4 to 8 feet below ground surface. The groundwater sample was collected using hydro-punch technology. The hydro-punch sampler was driven down to the target depth and no more than 4 feet of screen was exposed. The sample was collected using a tubing bottom check-ball valve and decanted directly into a laboratory-supplied container. The sample was placed in a chilled cooler to ensure the preservation of analytes. The sample was then submitted to a State-certified laboratory for analysis under chain-of-custody protocol for analysis of:

- TPHg by EPA Method 8260
- BTEX by EPA Method 8260
- MTBE by EPA Method 8260
- TPHd and TPHmo by EPA Method 3550 with silica gel cleanup

RESULTS OF INVESTIGATION

Analytical Results

Analysis of the soil and groundwater samples collected from boring B12 did not detect the presence of any of the tested analytes above standard detection limits. Current and historical soil and groundwater analytical results from temporary borings are summarized in Tables 1 and 2, respectively. Figure 3 presents current and historical soil contaminant concentrations at the site. Figure 4 presents current and historical groundwater contaminant concentrations at the site.

DISCUSSION

The soil and groundwater contaminant masses at the site were defined by the 2000, 2001 and 2002 subsurface investigations. Data generated from these boring installations suggest that the majority of the soil contamination mass associated with the former waste oil UST is minimal, not mobile, and does not extend laterally further than approximately 5 feet from the tank cavity. Additionally, groundwater impacted by the former waste oil tank was identified in groundwater samples collected from borings B3 and B6 and appeared to be delineated to within 5 feet from the tank cavity. Reports of non-detect for the contaminants of concern in all other groundwater samples from the site provide evidence for the stability of the groundwater plume.

Boring B12, installed during this investigation, was purposefully located in between the primary source area and boring B6, located approximately 5 feet from the former cavity, and reportedly the most impacted boring to date. The purpose of boring B12 was to confirm contaminant degradation at the site and provide evidence to contribute to the argument for case closure. Based

on the reported non-detections of all target analytes in boring B12, located in between the primary source and boring B6, it appears that the contaminant mass continues to maintain stability in both soil and groundwater adjacent to the former UST.

As stated in the 2002 report (LACO, June 2002), and in conjunction with data collected during this investigation, MTBE has been detected in groundwater collected from all but four borings (B2, B5, B9, and B12) at the site. Historically, the subject property operated as an automotive repair business. The UST removed from the site in 1990 was used to hold waste oil only. Gasoline products were not sold or stored at this site. MTBE has been indicated in groundwater samples from neighboring up-gradient UST sites. It appears that the low concentrations of MTBE have migrated onto the site from up-gradient sources.

RECOMMENDATIONS

Having satisfied the requirements for regulatory closure as defined in the September 18, 2003, HCDEH correspondence (submittal of a sensitive receptor survey and data point showing declining trend), LACO recommends that no further action be required for this site and requests case closure.

LIMITATIONS

LACO ASSOCIATES has conducted the services identified herein in a manner consistent with the levels of care and skill ordinarily exercised by members of our profession currently practicing in our area under similar conditions as this project. No other warranty or representation, expressed or implied, is included or intended for this document.

This report is an instrument of service of LACO ASSOCIATES and was prepared for and was intended for the exclusive use of Murrish and Associates. The contents of this report may not be relied upon by any other party other than Murrish and Associates without the express written permission of LACO ASSOCIATES.

This report's findings are based on conditions that existed in the dates indicated and in the specified location where samples were taken. The findings herein should not be relied on to precisely report conditions at any other time or location.

LIST OF FIGURES

Figure 1: Location Map

LIST OF TABLES

LIST OF ATTACHMENTS

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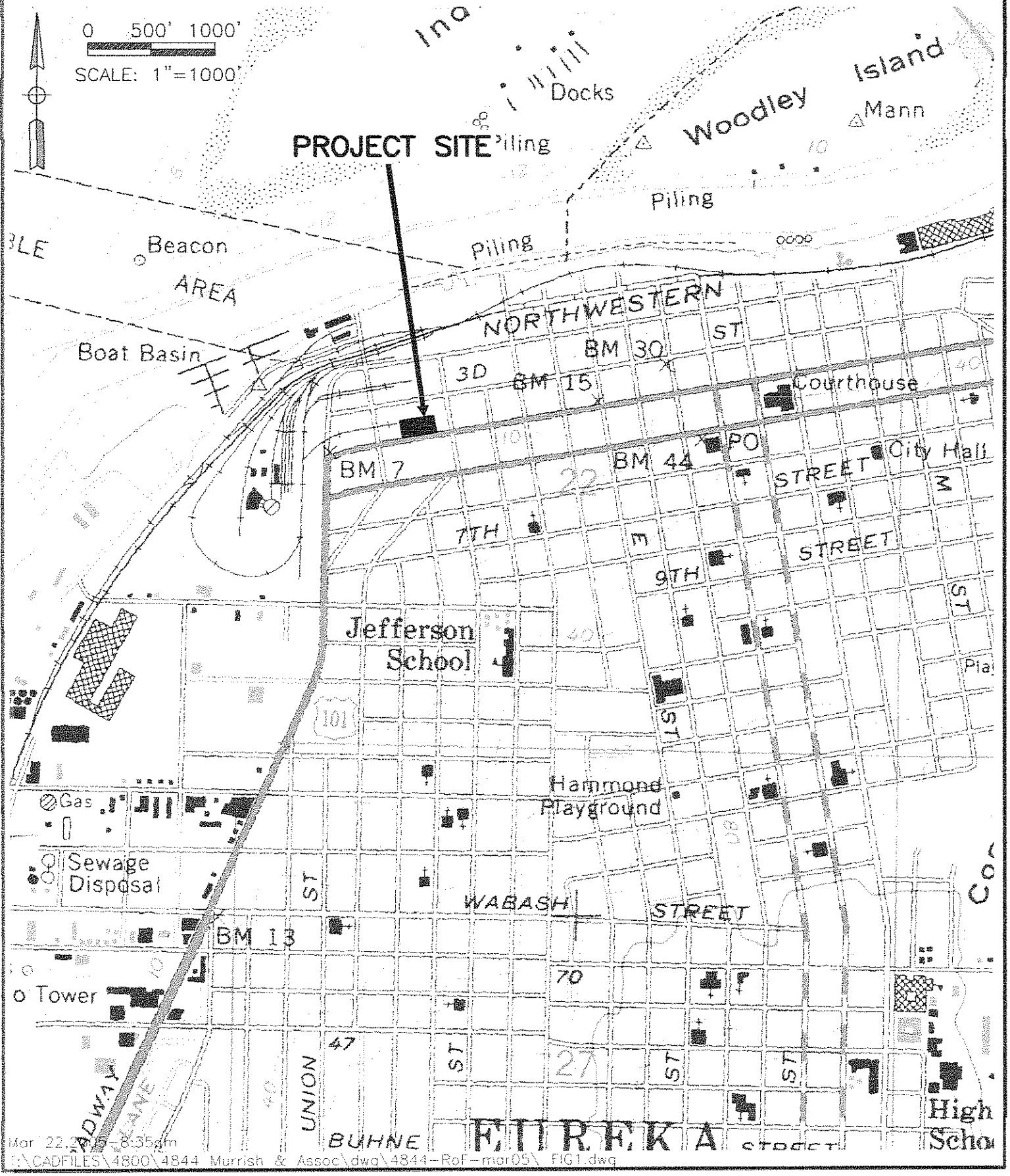
LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT	REPORT OF FINDINGS; REQUEST FOR CLOSURE	BY RJM	FIGURE 1
CLIENT	MURRISH & ASSOCIATES	DATE 3/22/04	
LOCATION	ZENKER-FELT MOTORS	CHECK	JOB NO. 4844.00
	LOCATION MAP	SCALE 1"=1000'	



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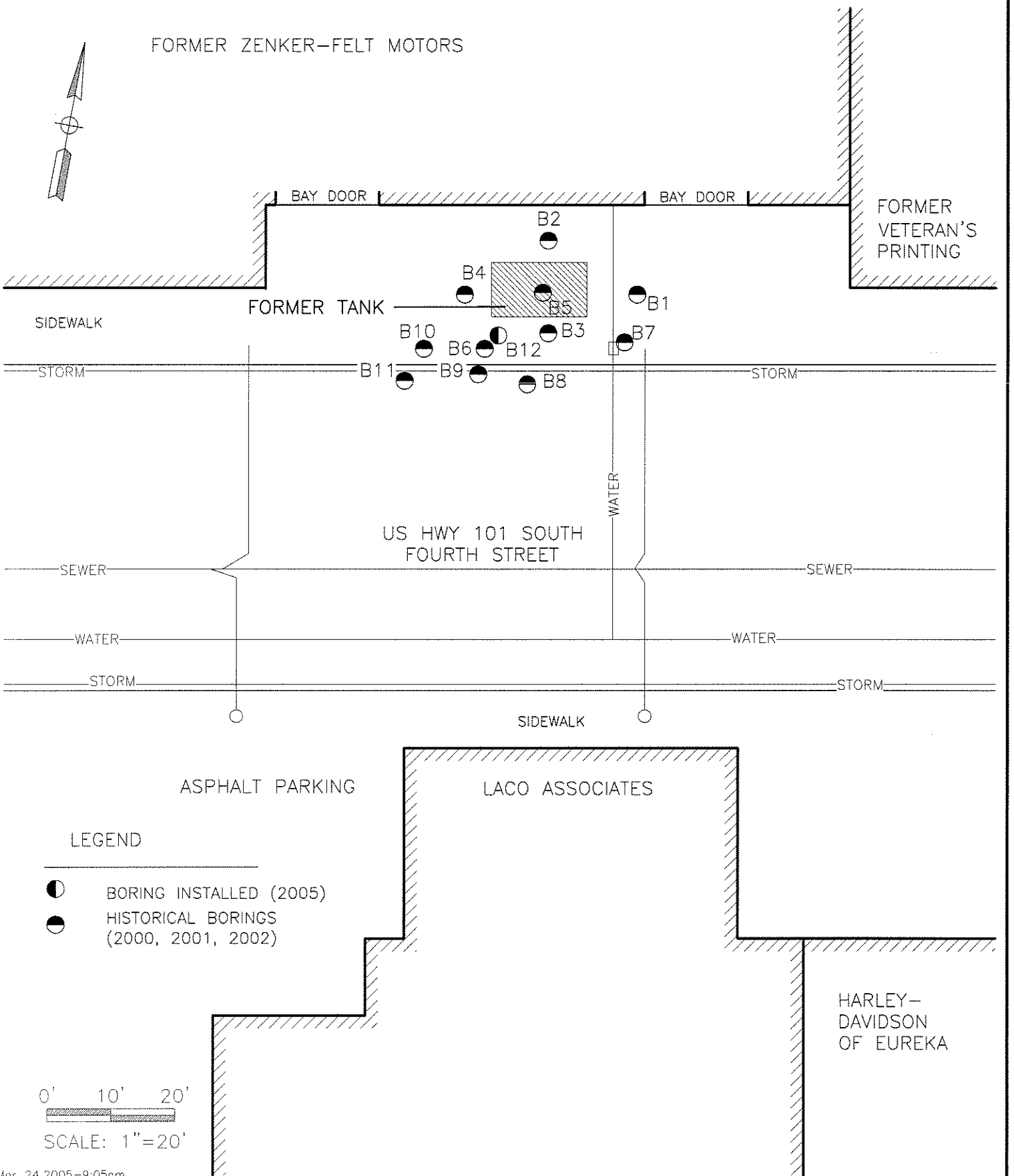
LACO ASSOCIATES CONSULTING ENGINEERS 21 W 4TH ST. EUREKA, CA 95501 (707)443-5054	PROJECT	REPORT OF FINDINGS; REQUEST FOR CLOSURE	BY RJM	FIGURE 2
	CLIENT	MURRISH & ASSOCIATES	DATE 3/22/05	
	LOCATION	ZENKER–FELT MOTORS	CHECK	JOB NO. 4844.00
		SITE MAP	SCALE 1"=20'	



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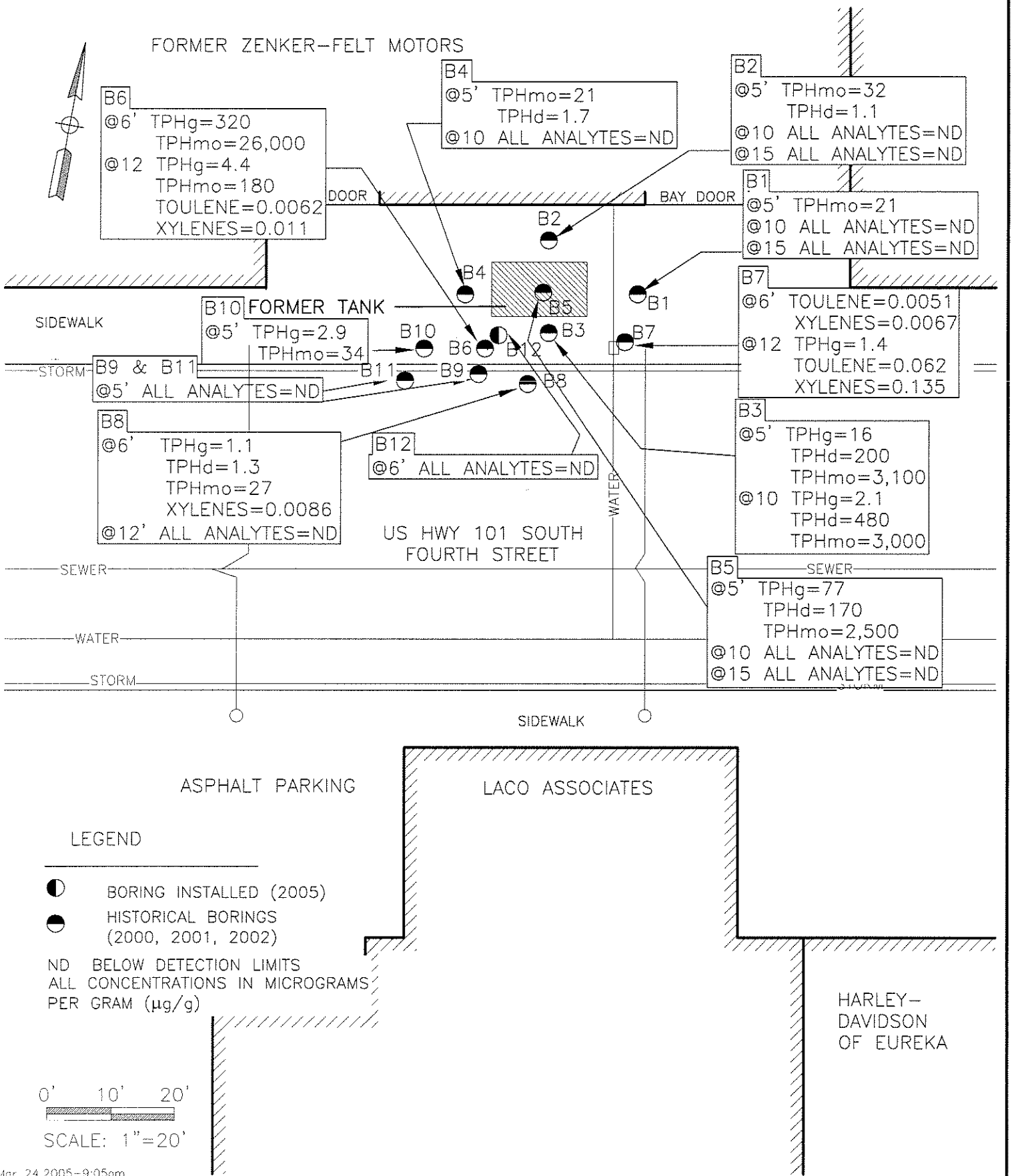
LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT	REPORT OF FINDINGS; REQUEST FOR CLOSURE	BY RJM	FIGURE 3
CLIENT	MURRISH & ASSOCIATES	DATE 3/22/05	
LOCATION	ZENKER-FELT MOTORS	CHECK	JOB NO. 4844.00
	SOIL CONTAMINANT CONCENTRATION MAP	SCALE 1"=20'	



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LACO ASSOCIATES
CONSULTING ENGINEERS
21 W 4TH ST. EUREKA, CA 95501 (707)443-5054

PROJECT	REPORT OF FINDINGS; REQUEST FOR CLOSURE	BY RJM	FIGURE 4
CLIENT	MURRISH & ASSOCIATES	DATE 3/22/05	
LOCATION	ZENKER-FELT MOTORS	CHECK	JOB NO. 4844.00
	GROUNDWATER CONTAMINANT CONCENTRATION MAP	SCALE 1"=20'	

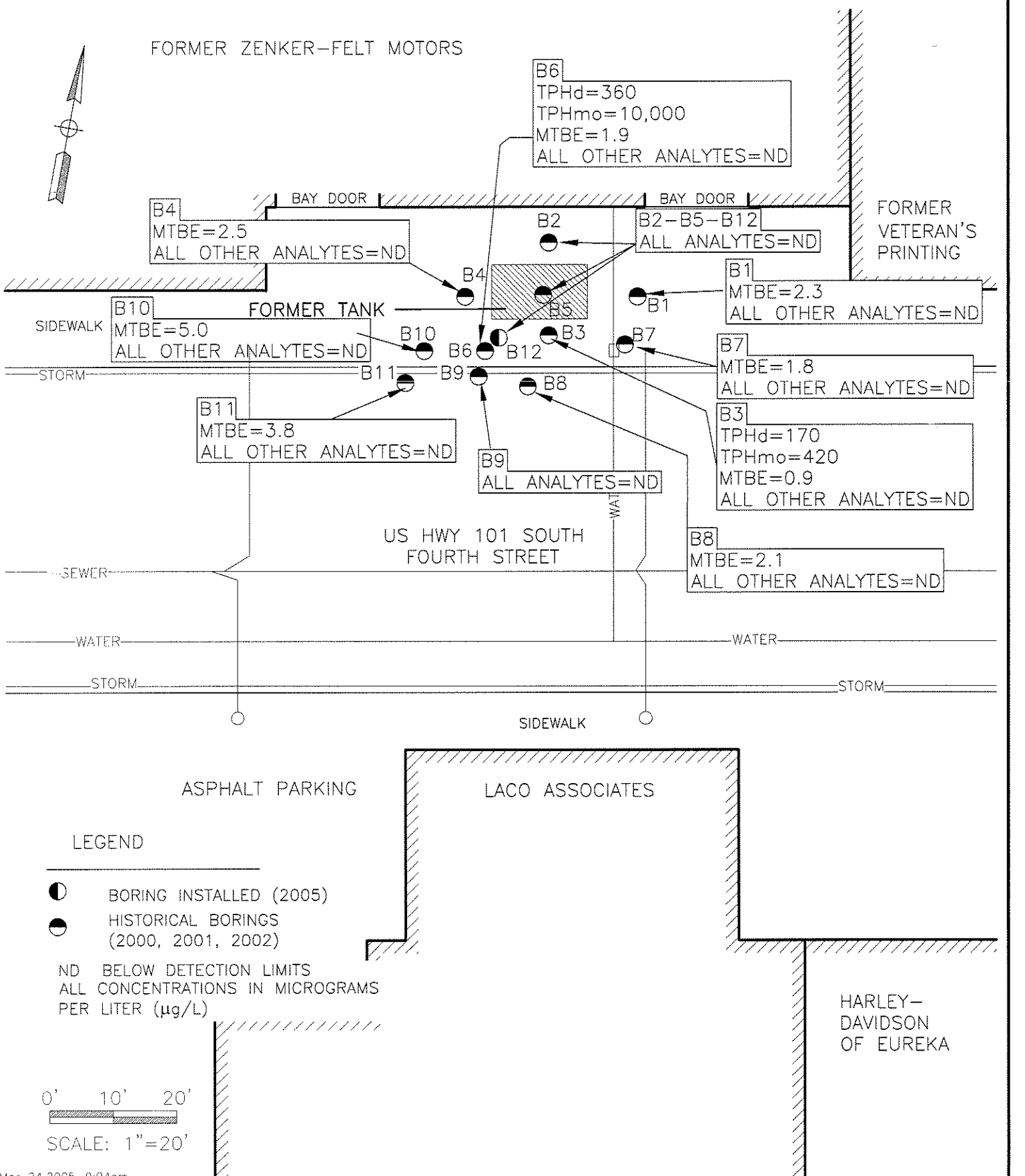

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TABLE 1: SOIL ANALYTICAL RESULTS
Former Zenker-Felt Motors
22 W. 4th Street, Eureka
LACO No. 4844.00

Sample Number	Sample Date	TPHg (µg/g)	TPHd (µg/g)	TPHmo (µg/g)	Benzene (µg/g)	Toluene (µg/g)	Ethylbenzene (µg/g)	Xylenes (µg/g)	MTBE (µg/g) +	Addt'l Analytes * (µg/g)
2000 Investigation										
B1 @ 5'	5/17/2000	ND <1.0	ND <1.0	**21**	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.050	---
B1 @ 10'	5/17/2000	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.050	---
B1 @ 15'	5/17/2000	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.020	ND <0.005	ND <0.005	ND <0.050	---
B2 @ 5'	5/17/2000	ND <1.0	**1.1**	**32**	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.050	---
B2 @ 10'	5/17/2000	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.050	---
B2 @ 15'	5/17/2000	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.050	---
B3 @ 5'	5/17/2000	**16**	**200**	**3,100**	ND <0.005	ND <0.010	ND <0.010	ND <0.010	ND <0.050	---
B3 @ 10'	5/17/2000	**2.1**	**480**	**3,000**	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.005	All ND
B4 @ 5'	5/17/2000	ND <1.0	**1.7**	**21**	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.050	---
B4 @ 10'	5/17/2000	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.050	---
B5 @ 5'	5/17/2000	**77**	**170**	**2,500**	ND <0.050	ND <0.40	ND <0.40	ND <0.80	ND <0.50	---
B5 @ 10'	5/17/2000	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.050	---
B5 @ 15'	5/17/2000	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.050	---
2001 Investigation										
B6 @ 6'	11/13/2001	**320**	ND <1,000	**26,000**	ND <0.05	ND <0.5	ND <0.5	ND <0.5	ND <0.5	---
B6 @ 12'	11/13/2001	**4.4**	ND <10	**180**	ND <0.005	**0.0062**	ND <0.005	**0.011**	ND <0.005	---
B7 @ 6'	11/13/2001	ND <1.0	ND <1.0	ND <10	ND <0.005	**0.0051**	ND <0.005	**0.0067**	ND <0.005	---
B7 @ 12'	11/13/2001	**1.4**	ND <1.0	ND <10	ND <0.005	**0.062**	ND <0.005	**0.135**	ND <0.005	---
B8 @ 6'	11/13/2001	**1.1**	**1.3**	**27**	ND <0.005	ND <0.005	ND <0.005	**0.0086**	ND <0.005	---
B8 @ 12'	11/13/2001	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.005	---
2002 Investigation										
B9 @ 4.5'	2/22/2002	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.005	---
B10 @ 5'	2/22/2002	ND <1.0	**2.9**	**34**	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.005	---
B11 @ 5'	2/22/2002	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.005	---
2005 Investigation										
B12 @ 6'	1/24/2005	ND <1.0	ND <1.0	ND <10	ND <0.005	ND <0.005	ND <0.005	ND <0.005	ND <0.005	---

* Additional analytes include polynuclear aromatic hydrocarbons (PAH) and halogenated volatiles

TABLE 2: GROUNDWATER ANALYTICAL RESULTS
Former Zenker-Felt Motors
22 W. 4th Street, Eureka
LACO No. 4844.00

Sample Number	Sample Date	TPHg (µg/l)	TPHd (µg/l)	TPHmo (µg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	MTBE (µg/l)	Other Oxygenates (µg/l)	Lead Scavengers (µg/l)	Creosote (µg/l)
2000 Investigation												
B1	5/17/2000	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	**2.3**	ND	ND	---
B2	5/17/2000	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	ND	ND	---
B3	5/17/2000	ND < 50	**170**	**420**	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	**0.9**	ND	ND	Absent
B4	5/17/2000	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	**2.5**	ND	ND	---
B5	5/17/2000	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	ND	ND	Absent
2001 Investigation												
B6	11/13/2001	ND < 50	**360**	**10,000**	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	**1.9**	ND < 120	---	---
B7	11/13/2001	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	**1.8**	ND < 120	---	---
B8	11/13/2001	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	**2.1**	ND < 120	---	---
2002 Investigation												
B9	2/22/2002	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	ND < 3.0	---	---	---
B10	2/22/2002	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	**5.0**	---	---	---
B11	2/22/2002	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	**3.8**	---	---	---
2005 Investigation												
B12	1/24/2005	ND < 50	ND < 50	ND < 170	ND < 0.50	ND < 0.50	ND < 0.50	ND < 0.50	ND < 1.0	ND	---	---

Fuel Oxygenates include: di-isopropyl ether (DIPE), methanol, ethanol, ethyl tertiary butyl ether (ETBE), tert-amyl methyl ether (TAME) and tert-butyl alcohol (TBA)

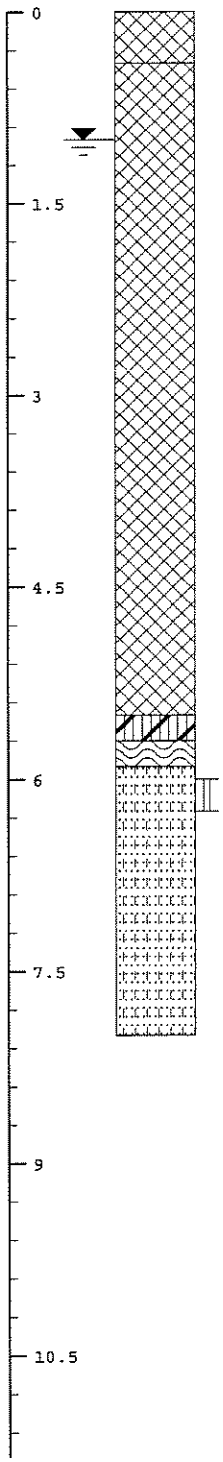
Lead Scavengers (former fuel additives): ethylene dibromide (EDB), dichloroethane (DCA), dichlorobenzene, and chlorobenzene.

Attachment 1

ENVIRONMENTAL BORING LOG

Boring No. B12

PROJECT: ZENKER FELT MOTORS
PROJECT NO.: 4844.00
BORING LOCATION: BTWN FORMER UST AND BORING B6
DATE: 1/24/05
DRILLING METHOD: DIRECT PUSH
ELEVATION: APPROX 5 FEET MSL
DRILLER: LACO INSTALLED
LOGGED BY: GLM
DEPTH TO WATER: **INITIAL** ▽ : 1 FOOT **COMPLETION** ▽ : 1 FOOT
SITE GEOLOGY: FILLED BAY MARGIN



ELEVATION/ DEPTH	SOIL SYMBOLS, SAMPLERS AND TEST DATA	USCS	Description	P.I.D. ppm	Hanby result
		FILL	CONCRETE		
		FILL	DREDGE FILL: Silty sand, loose, gray, saturated.		
		CL-ML	SILTY CLAY: Soft, gray, wet to saturated.		
		OL	ORGANIC SILT/PEAT: Medium stiff, dark brown to black, wet.		
		SW-SM	WELL GRADED SAND WITH SILT: With fine gravel, medium dense, gray, saturated.		
			BOTTOM OF BORING AT 8 FEET IN SAME.		

Collected soil sample at a depth of approximately 6 feet. Collected groundwater sample using hydropunch technology. Hydropunch screen interval set at approximately 4 to 8 feet bgs.

Figure _____

Attachment 2

NORTH COAST LABORATORIES LTD.

February 18, 2005

LACO Associates
P.O. Box 1023
Eureka, CA 95502

DRG

GLM

Attn: Gary Manhart

RE: 4844.01 Zenker-Felt

Order No.: 0501476
Invoice No.: 47978
PO No.:
ELAP No. 1247-Expires July 2006

SAMPLE IDENTIFICATION

Fraction	Client Sample Description
01A	4844-B12-S
01B	4844-B12-S
02A	4844-B12-W
02D	4844-B12-W

ND = Not Detected at the Reporting Limit

Limit = Reporting Limit

All solid results are expressed on a wet-weight basis unless otherwise noted.

REPORT CERTIFIED BY

Laboratory Supervisor(s) | QA Unit | Jesse G. Chaney, Jr. Laboratory Director

North Coast Laboratories, Ltd. **Date:** *18-Feb-05*

CLIENT: LACO Associates
Project: 4844.01 Zenker-Felt
Lab Order: 0501476

CASE NARRATIVE

THIS IS AN AMENDED REPORT!
TPH as Motor Oil was added and the sample extracts were re-analyzed per client request. Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) data are not available for this analye.

Both samples submitted for a silica gel cleanup were initially analyzed for diesel. The samples showed no detectable levels of the analyte and were not subjected to the cleanup procedure.

Gasoline Components/Additives:
The surrogate recovery was below the lower acceptance limit for the method blank. The response of the reporting limit standard was such that the analytes would have been detected even with the low recovery; therefore, the data were accepted.

TPH as Diesel - Water:
The surrogate recoveries were above the upper acceptance limit for sample 4844-B12-W and the laboratory control sample/laboratory control sample duplicate (LCS/LCSD). The LCS/LCSD recoveries were within the acceptance limits for diesel; therefore, the data were accepted.

TPH as Diesel - Soil:
The surrogate recoveries were above the upper acceptance limit for the method blank and the LCS/LCSD. The LCS/LCSD recoveries were within the acceptance limits for diesel; therefore, the data were accepted.

NORTH COAST LABORATORIES
5680 West End Road • Arcata, California 95521-9202 • 707-822-4649 • FAX 707-822-6831

Date: 18-Feb-05
WorkOrder: 0501476

ANALYTICAL REPORT

Client Sample ID: 4844-B12-S **Received:** 1/24/05 **Collected:** 1/24/05 0:00
Lab ID: 0501476-01A **Matrix:** Soil

Test Name: BTEX **Reference:** EPA 5035/EPA 8021B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
MTBE	ND	0.050	µg/g	1.0	1/26/05	1/27/05
Benzene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
Toluene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
Ethylbenzene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
m,p-Xylene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
o-Xylene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
Surrogate: Cis-1,2-Dichloroethylene	105	71.8-135	% Rec	1.0	1/26/05	1/27/05

Test Name: TPH as Gasoline **Reference:** EPA 5035/GCFID(LUFT)/EPA 8015B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gas (C6-C14)	ND	1.0	µg/g	1.0	1/26/05	1/27/05

Client Sample ID: 4844-B12-S **Received:** 1/24/05 **Collected:** 1/24/05 0:00
Lab ID: 0501476-01B **Matrix:** Soil

Test Name: TPH as Diesel **Reference:** EPA 3550/GCFID(LUFT)/EPA 8015B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Diesel (C12-C22)	ND	1.0	µg/g	1.0	2/1/05	2/2/05
Surrogate: N-Tricosane	121	45.3-122	% Rec	1.0	2/1/05	2/2/05

Test Name: TPH as Diesel/Motor Oil **Reference:** EPA 3550/GCFID(LUFT)/EPA 8015B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Motor Oil	ND	10	µg/g	1.0	2/1/05	2/14/05

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Date: 18-Feb-05
WorkOrder: 0501476

ANALYTICAL REPORT

Client Sample ID: 4844-B12-W **Received:** 1/24/05 **Collected:** 1/24/05 0:00
Lab ID: 0501476-02A **Matrix:** Groundwater

Test Name: Gasoline Components/Additives **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Methyl tert-butyl ether (MTBE)	ND	1.0	µg/L	1.0		2/3/05
Tert-butyl alcohol (TBA)	ND	10	µg/L	1.0		2/3/05
Di-isopropyl ether (DIPE)	ND	1.0	µg/L	1.0		2/3/05
Ethyl tert-butyl ether (ETBE)	ND	1.0	µg/L	1.0		2/3/05
Benzene	ND	0.50	µg/L	1.0		2/3/05
Tert-amyl methyl ether (TAME)	ND	1.0	µg/L	1.0		2/3/05
Toluene	ND	0.50	µg/L	1.0		2/3/05
Ethylbenzene	ND	0.50	µg/L	1.0		2/3/05
m,p-Xylene	ND	0.50	µg/L	1.0		2/3/05
o-Xylene	ND	0.50	µg/L	1.0		2/3/05
Surrogate: 1,4-Dichlorobenzene-d4	85.8	80.8-139	% Rec	1.0		2/3/05

Test Name: TPH as Gasoline **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gasoline	ND	50	µg/L	1.0		2/3/05

Client Sample ID: 4844-B12-W **Received:** 1/24/05 **Collected:** 1/24/05 0:00
Lab ID: 0501476-02D **Matrix:** Groundwater

Test Name: TPH as Diesel **Reference:** EPA 3510/GCFID(LUFT)/EPA 8015B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Diesel (C12-C22)	ND	50	µg/L	1.0	1/29/05	1/31/05
Surrogate: N-Tricosane	119	27.6-107	% Rec	1.0	1/29/05	1/31/05

Test Name: TPH as Diesel/Motor Oil **Reference:** EPA 3510/GCFID(LUFT)/EPA 8015B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Motor Oil	ND	170	µg/L	1.0	1/29/05	2/14/05

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707-822-4649 Fax 707-822-6831

Chain of Custody

LABORATORY NUMBER: 0501476

Attention: Erin Manhart
Results & Invoice to: LACO
Address: 21 W 4th ST.
Eureka
Phone: 443-5054
Copies of Report to:
Sampler (Sign & Print): Erin Manhart

TAT: ☐ 24 Hr ☐ 48 Hr ☐ 5 Day ☐ 5–7 Day
☑ STD (2–3 Wk) ☐ Other:
PRIOR AUTHORIZATION IS REQUIRED FOR RUSHES

REPORTING REQUIREMENTS: State Forms ☐
Preliminary: FAX ☑ Verbal ☐ By:__/__/__
Final Report: FAX ☐ Verbal ☐ By:__/__/__

CONTAINER CODES: 1—½ gal. pl; 2—250 ml pl; 3—500 ml pl; 4—1 L Nalgene; 5—250 ml BG; 6—500 ml BG; 7—1 L BG; 8—1 L cg; 9—40 ml VOA; 10—125 ml VOA; 11—4 oz glass jar; 12—8 oz glass jar; 13—brass tube; 14—other

PRESERVATIVE CODES: a—HNO_3; b—HCl; c—H_2SO_4; d—$Na_2S_2O_3$; e—NaOH; f—$C_2H_3O_2Cl$; g—other

PROJECT INFORMATION

Project Number: 4844.01
Project Name: Zonker - Test
Purchase Order Number:

LAB ID	SAMPLE ID	DATE	TIME	MATRIX*	CONTAINER	PRESERVATIVE	ANALYSIS
	4844-B12-S	1-24-05	AM	Soil	13	HCl	TPHd, BTEX
	4844-B12-W	1-24-05	AM	H2O	13	HCl	TPHd, BTEX
					9	HCl	8260 list 1
					7		TPHd w/SGC

SAMPLE CONDITION/SPECIAL INSTRUCTIONS

evidence of coal
temp. 10.0

RELINQUISHED BY (Sign & Print)	DATE/TIME	RECEIVED BY (Sign)	DATE/TIME
J. Willik 1450	1-24-05		1/24/05
			1500

SAMPLE DISPOSAL
☑ NCL Disposal of Non-Contaminated
☐ Return ☐ Pickup

CHAIN OF CUSTODY SEALS Y/N/NA
SHIPPED VIA: UPS Air-Ex Fed-Ex Bus Hand

***MATRIX:** DW=Drinking Water; Eff=Effluent; Inf=Influent; SW=Surface Water; GW=Ground Water; S=Soil; O=Other.

ALL CONTAMINATED NON-AQUEOUS SAMPLES WILL BE RETURNED TO CLIENT

NORTH COAST
LABORATORIES LTD.

DRG
GCH

February 07, 2005

LACO Associates
P.O. Box 1023
Eureka, CA 95502

Attn: Gary Manhart

Order No.: 0501476
Invoice No.: 47978
PO No.:
ELAP No. 1247-Expires July 2006

RE: 4844.01 Zenker-Felt

SAMPLE IDENTIFICATION

Fraction	Client Sample Description
01A	4844-B12-S
01B	4844-B12-S
02A	4844-B12-W
02D	4844-B12-W

ND = Not Detected at the Reporting Limit

Limit = Reporting Limit

All solid results are expressed on a wet-weight basis unless otherwise noted.

REPORT CERTIFIED BY

Laboratory Supervisor(s) | QA Unit | Jesse G. Chaney, Jr.
Laboratory Director

North Coast Laboratories, Ltd. **Date:** *07-Feb-05*

CLIENT: LACO Associates
Project: 4844.01 Zenker-Felt
Lab Order: 0501476

CASE NARRATIVE

Both samples submitted for a silica gel cleanup were initially analyzed for diesel. The samples showed no detectable levels of the analyte and were not subjected to the cleanup procedure.

Gasoline Components/Additives:
The surrogate recovery was below the lower acceptance limit for the method blank. The response of the reporting limit standard was such that the analytes would have been detected even with the low recovery; therefore, the data were accepted.

TPH as Diesel - Water:
The surrogate recoveries were above the upper acceptance limit for sample 4844-B12-W and the laboratory control sample/laboratory control sample duplicate (LCS/LCSD). The LCS/LCSD recoveries were within the acceptance limits for diesel; therefore, the data were accepted.

TPH as Diesel - Soil:
The surrogate recoveries were above the upper acceptance limit for the method blank and the LCS/LCSD. The LCS/LCSD recoveries were within the acceptance limits for diesel; therefore, the data were accepted.

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Date: 07-Feb-05
WorkOrder: 0501476

ANALYTICAL REPORT

Client Sample ID: 4844-B12-S **Received:** 1/24/05 **Collected:** 1/24/05 0:00
Lab ID: 0501476-01A **Matrix:** Soil

Test Name: BTEX **Reference:** EPA 5035/EPA 8021B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
MTBE	ND	0.050	µg/g	1.0	1/26/05	1/27/05
Benzene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
Toluene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
Ethylbenzene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
m,p-Xylene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
o-Xylene	ND	0.0050	µg/g	1.0	1/26/05	1/27/05
Surrogate: Cis-1,2-Dichloroethylene	105	71.8-135	% Rec	1.0	1/26/05	1/27/05

Test Name: TPH as Gasoline **Reference:** EPA 5035/GCFID(LUFT)/EPA 8015B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gas (C6-C14)	ND	1.0	µg/g	1.0	1/26/05	1/27/05

Client Sample ID: 4844-B12-S **Received:** 1/24/05 **Collected:** 1/24/05 0:00
Lab ID: 0501476-01B **Matrix:** Soil

Test Name: TPH as Diesel **Reference:** EPA 3550/GCFID(LUFT)/EPA 8015B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Diesel (C12-C22)	ND	1.0	µg/g	1.0	2/1/05	2/2/05
Surrogate: N-Tricosane	121	45.3-122	% Rec	1.0	2/1/05	2/2/05

Client Sample ID: 4844-B12-W **Received:** 1/24/05 **Collected:** 1/24/05 0:00
Lab ID: 0501476-02A **Matrix:** Groundwater

Test Name: Gasoline Components/Additives **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
Methyl tert-butyl ether (MTBE)	ND	1.0	µg/L	1.0		2/3/05
Tert-butyl alcohol (TBA)	ND	10	µg/L	1.0		2/3/05
Di-isopropyl ether (DIPE)	ND	1.0	µg/L	1.0		2/3/05
Ethyl tert-butyl ether (ETBE)	ND	1.0	µg/L	1.0		2/3/05
Benzene	ND	0.50	µg/L	1.0		2/3/05
Tert-amyl methyl ether (TAME)	ND	1.0	µg/L	1.0		2/3/05
Toluene	ND	0.50	µg/L	1.0		2/3/05
Ethylbenzene	ND	0.50	µg/L	1.0		2/3/05
m,p-Xylene	ND	0.50	µg/L	1.0		2/3/05
o-Xylene	ND	0.50	µg/L	1.0		2/3/05
Surrogate: 1,4-Dichlorobenzene-d4	85.8	80.8-139	% Rec	1.0		2/3/05

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Date: 07-Feb-05

ANALYTICAL REPORT

WorkOrder: 0501476

Test Name: TPH as Gasoline **Reference:** LUFT/EPA 8260B Modified

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Gasoline	ND	50	µg/L	1.0		2/3/05

Client Sample ID: 4844-B12-W **Received:** 1/24/05 **Collected:** 1/24/05 0:00

Lab ID: 0501476-02D **Matrix:** Groundwater

Test Name: TPH as Diesel **Reference:** EPA 3510/GCFID(LUFT)/EPA 8015B

Parameter	Result	Limit	Units	DF	Extracted	Analyzed
TPHC Diesel (C12-C22)	ND	50	µg/L	1.0	1/29/05	1/31/05
Surrogate: N-Tricosane	119	27.6-107	% Rec	1.0	1/29/05	1/31/05

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North Coast Laboratories, Ltd.

Date: 07-Feb-05

CLIENT: LACO Associates
Work Order: 0501476
Project: 4844.01 Zenker-Felt

QC SUMMARY REPORT

Method Blank

Sample ID: **MB 020205** Batch ID: **R33168** Test Code: **8260OXYW** Units: **µg/L** Analysis Date: **2/3/05 1:08:00 AM** Prep Date:

Client ID: Run ID: **ORGCMS2_050202A** SeqNo: **480986**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0									
Tert-butyl alcohol (TBA)	ND	10									
Di-isopropyl ether (DIPE)	ND	1.0									
Ethyl tert-butyl ether (ETBE)	ND	1.0									
Benzene	ND	0.50									
Tert-amyl methyl ether (TAME)	ND	1.0									
Toluene	0.07997	0.50									J
Ethylbenzene	0.1397	0.50									J
m,p-Xylene	ND	0.50									
o-Xylene	0.1953	0.50									J
1,4-Dichlorobenzene-d4	0.806	0.10	1.00	0	80.6%	81	139	0			S

Sample ID: **MB-12860** Batch ID: **12860** Test Code: **BTXES** Units: **µg/g** Analysis Date: **1/26/05 10:51:51 PM** Prep Date: **1/26/05**

Client ID: Run ID: **ORGC8_050126B** SeqNo: **479011**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	ND	0.050									
Benzene	ND	0.0050									
Toluene	ND	0.0050									
Ethylbenzene	ND	0.0050									
m,p-Xylene	ND	0.0050									
o-Xylene	ND	0.0050									
Cis-1,2-Dichloroethylene	0.970	0.10	1.00	0	97.1%	72	135	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: LACO Associates
Work Order: 0501476
Project: 4844.01 Zenker-Felt

QC SUMMARY REPORT
Method Blank

Sample ID: **MB 020205** Batch ID: **R33166** Test Code: **GASW-MS** Units: **µg/L** Analysis Date: **2/3/05 1:08:00 AM** Prep Date:
Client ID: Run ID: **ORGCMS2_050203A** SeqNo: **480957**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	ND	50									

Sample ID: **MB-12860** Batch ID: **12860** Test Code: **TPHCGS** Units: **µg/g** Analysis Date: **1/26/05 10:51:51 PM** Prep Date: **1/26/05**
Client ID: Run ID: **ORGC8_050126A** SeqNo: **478988**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gas (C6-C14)	0.3385	1.0									J

Sample ID: **MB-12889** Batch ID: **12889** Test Code: **TPHDIS** Units: **µg/g** Analysis Date: **2/2/05 10:23:54 AM** Prep Date: **2/1/05**
Client ID: Run ID: **ORGC7_050201A** SeqNo: **480676**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	ND	1.0									
N-Tricosane	1.23	0.10	1.00	0	123%	45	122	0			S

Sample ID: **MB-12877** Batch ID: **12877** Test Code: **TPHDIW** Units: **µg/L** Analysis Date: **1/31/05 11:45:05 AM** Prep Date: **1/29/05**
Client ID: Run ID: **ORGC7_050131A** SeqNo: **480159**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	ND	50									
N-Tricosane	48.4	0.10	50.0	0	96.9%	28	107	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

North Coast Laboratories, Ltd.

Date: 07-Feb-05

CLIENT: LACO Associates
Work Order: 0501476
Project: 4844.01 Zenker-Felt

QC SUMMARY REPORT

Laboratory Control Spike

Sample ID: **LCS-05078** Batch ID: **R33168** Test Code: **8260OXYW** Units: **µg/L** Analysis Date: **2/3/05 9:07:00 AM** Prep Date:

Client ID: Run ID: **ORGCMS2_050202A** SeqNo: **480983**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	16.53	1.0	20.0	0	82.6%	80	120	0			
Tert-butyl alcohol (TBA)	359.8	10	400	0	90.0%	25	162	0			
Di-isopropyl ether (DIPE)	16.87	1.0	20.0	0	84.3%	80	120	0			
Ethyl tert-butyl ether (ETBE)	17.06	1.0	20.0	0	85.3%	77	120	0			
Benzene	17.91	0.50	20.0	0	89.6%	78	117	0			
Tert-amyl methyl ether (TAME)	17.75	1.0	20.0	0	88.8%	64	136	0			
Toluene	17.24	0.50	20.0	0	86.2%	80	120	0			
Ethylbenzene	18.99	0.50	20.0	0	94.9%	80	120	0			
m,p-Xylene	38.19	0.50	40.0	0	95.5%	80	120	0			
o-Xylene	19.28	0.50	20.0	0	96.4%	80	120	0			
1,4-Dichlorobenzene-d4	1.03	0.10	1.00	0	103%	81	139	0			

Sample ID: **LCSD-05078** Batch ID: **R33168** Test Code: **8260OXYW** Units: **µg/L** Analysis Date: **2/3/05 9:37:00 AM** Prep Date:

Client ID: Run ID: **ORGCMS2_050202A** SeqNo: **480984**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	16.76	1.0	20.0	0	83.8%	80	120	16.5	1.38%	20	
Tert-butyl alcohol (TBA)	379.2	10	400	0	94.8%	25	162	360	5.23%	20	
Di-isopropyl ether (DIPE)	16.80	1.0	20.0	0	84.0%	80	120	16.9	0.411%	20	
Ethyl tert-butyl ether (ETBE)	18.51	1.0	20.0	0	92.5%	77	120	17.1	8.14%	20	
Benzene	17.79	0.50	20.0	0	89.0%	78	117	17.9	0.684%	20	
Tert-amyl methyl ether (TAME)	17.83	1.0	20.0	0	89.1%	64	136	17.8	0.422%	20	
Toluene	17.63	0.50	20.0	0	88.2%	80	120	17.2	2.26%	20	
Ethylbenzene	18.88	0.50	20.0	0	94.4%	80	120	19.0	0.567%	20	
m,p-Xylene	37.82	0.50	40.0	0	94.6%	80	120	38.2	0.973%	20	
o-Xylene	19.31	0.50	20.0	0	96.5%	80	120	19.3	0.151%	20	
1,4-Dichlorobenzene-d4	1.06	0.10	1.00	0	106%	81	139	1.03	2.59%	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: LACO Associates
Work Order: 0501476
Project: 4844.01 Zenker-Felt

QC SUMMARY REPORT
Laboratory Control Spike

Sample ID: **LCS-12860** Batch ID: **12860** Test Code: **BTXES** Units: **µg/g** Analysis Date: **1/26/05 6:50:57 PM** Prep Date: **1/26/05**
Client ID: Run ID: **ORGC8_050126B** SeqNo: **479008**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	0.3807	0.050	0.400	0	95.2%	75	124	0			
Benzene	0.05206	0.0050	0.0500	0	104%	80	128	0			
Toluene	0.05586	0.0050	0.0500	0	112%	85	126	0			
Ethylbenzene	0.05325	0.0050	0.0500	0	107%	80	126	0			
m,p-Xylene	0.1055	0.0050	0.100	0	106%	84	130	0			
o-Xylene	0.05414	0.0050	0.0500	0	108%	84	125	0			
Cis-1,2-Dichloroethylene	1.16	0.10	1.00	0	116%	72	135	0			

Sample ID: **LCSD-12860** Batch ID: **12860** Test Code: **BTXES** Units: **µg/g** Analysis Date: **1/26/05 7:25:28 PM** Prep Date: **1/26/05**
Client ID: Run ID: **ORGC8_050126B** SeqNo: **479009**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
MTBE	0.3770	0.050	0.400	0	94.3%	75	124	0.381	0.962%	15	
Benzene	0.05195	0.0050	0.0500	0	104%	80	128	0.0521	0.204%	15	
Toluene	0.05477	0.0050	0.0500	0	110%	85	126	0.0559	1.97%	15	
Ethylbenzene	0.05326	0.0050	0.0500	0	107%	80	126	0.0532	0.0124%	15	
m,p-Xylene	0.1037	0.0050	0.100	0	104%	84	130	0.106	1.72%	15	
o-Xylene	0.05370	0.0050	0.0500	0	107%	84	125	0.0541	0.811%	15	
Cis-1,2-Dichloroethylene	1.13	0.10	1.00	0	113%	72	135	1.16	2.95%	15	

Sample ID: **LCS-05079** Batch ID: **R33166** Test Code: **GASW-MS** Units: **µg/L** Analysis Date: **2/3/05 11:07:00 AM** Prep Date:
Client ID: Run ID: **ORGCMS2_050203A** SeqNo: **480954**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	921.2	50	1,000	0	92.1%	80	120	0			

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: LACO Associates
Work Order: 0501476
Project: 4844.01 Zenker-Felt

QC SUMMARY REPORT
Laboratory Control Spike Duplicate

Sample ID: **LCSD-05079** Batch ID: **R33166** Test Code: **GASW-MS** Units: **µg/L** Analysis Date: **2/3/05 11:37:00 AM** Prep Date:
Client ID: Run ID: **ORGCMS2_050203A** SeqNo: **480955**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gasoline	914.3	50	1,000	0	91.4%	80	120	921	0.761%	20	

Sample ID: **LCS-12860-G** Batch ID: **12860** Test Code: **TPHCGS** Units: **µg/g** Analysis Date: **1/26/05 8:34:25 PM** Prep Date: **1/26/05**
Client ID: Run ID: **ORGC8_050126A** SeqNo: **478985**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gas (C6-C14)	10.81	1.0	10.0	0	108%	94	140	0			

Sample ID: **LCSD-12860-G** Batch ID: **12860** Test Code: **TPHCGS** Units: **µg/g** Analysis Date: **1/26/05 9:08:50 PM** Prep Date: **1/26/05**
Client ID: Run ID: **ORGC8_050126A** SeqNo: **478986**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Gas (C6-C14)	10.97	1.0	10.0	0	110%	94	140	10.8	1.43%	15	

Sample ID: **LCS-12889** Batch ID: **12889** Test Code: **TPHDIS** Units: **µg/g** Analysis Date: **2/1/05 5:40:18 PM** Prep Date: **2/1/05**
Client ID: Run ID: **ORGC7_050201A** SeqNo: **480673**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	9.219	1.0	10.0	0	92.2%	78	133	0			
N-Tricosane	1.26	0.10	1.00	0	126%	45	122	0			S

Sample ID: **LCSD-12889** Batch ID: **12889** Test Code: **TPHDIS** Units: **µg/g** Analysis Date: **2/1/05 5:58:58 PM** Prep Date: **2/1/05**
Client ID: Run ID: **ORGC7_050201A** SeqNo: **480674**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	9.496	1.0	10.0	0	95.0%	78	133	9.22	2.96%	15	
N-Tricosane	1.25	0.10	1.00	0	125%	45	122	1.26	0.199%	15	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: LACO Associates
Work Order: 0501476
Project: 4844.01 Zenker-Felt

QC SUMMARY REPORT
Laboratory Control Spike

Sample ID: **LCS-12877** Batch ID: **12877** Test Code: **TPHDIW** Units: **µg/L** Analysis Date: **1/31/05 10:12:19 AM** Prep Date: **1/29/05**
Client ID: Run ID: **ORGC7_050131A** SeqNo: **480157**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	450.5	50	500	0	90.1%	80	120	0			
N-Tricosane	61.2	0.10	50.0	0	122%	28	107	0			S

Sample ID: **LCSD-12877** Batch ID: **12877** Test Code: **TPHDIW** Units: **µg/L** Analysis Date: **1/31/05 10:30:55 AM** Prep Date: **1/29/05**
Client ID: Run ID: **ORGC7_050131A** SeqNo: **480158**

Analyte	Result	Limit	SPK value	SPK Ref Val	% Rec	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPHC Diesel (C12-C22)	492.5	50	500	0	98.5%	80	120	450	8.89%	15	
N-Tricosane	60.7	0.10	50.0	0	121%	28	107	61.2	0.859%	15	S

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank